actions under this alternative, the impacts of transporting the HLW have been included in this EIS to fully inform the decisionmakers should an earlier opportunity to ship HLW present itself. The waste storage tanks would continue to be managed as described under the No Action Alternative.

Table 2-3 shows the number of containers that would be required and the number of offsite shipments that, by either truck or rail, would be needed to remove the waste under Alternative A. The waste volumes used in this EIS were based on waste volumes that are currently in storage and projections of additional wastes that could be generated from ongoing operations over the next 10 years. These volumes were then escalated by about 10 percent to account for the uncertainties in future waste projections, packaging efficiency, and the choice of shipping container. Using this process, CH-TRU waste was escalated to 1,130 cubic meters (40,000 cubic feet) (from 1,020 cubic meters [36,000 cubic feet]), and RH-TRU waste was escalated to 250 cubic meters (9,000 cubic feet) (from 230 cubic meters [8,000 cubic feet]). LLW was escalated to 14,000 cubic meters (500,000 cubic feet) (from 13,000 cubic meters [450,000 cubic feet]), with the exception of the LLW volumes stored in the Drum Cell, which were not escalated because actual container counts are known. This escalated volume includes 223 cubic meters (7,889 cubic feet) of mixed LLW.

LLW and mixed LLW would be disposed of at Hanford, NTS, or a commercial disposal site such as Envirocare. Activities at those sites would include unloading trucks or railcars, inspecting the waste containers, and moving the waste to the disposal areas for shallow land burial. Waste handling and disposal activities at Envirocare are regulated by the NRC and the State of Utah under a Radioactive Material License (UT2300249). LLW and mixed LLW handling and disposal activities at Hanford and NTS are described in the *Final Waste Management Programmatic Environmental Impact Statement for Managing, Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DOE/EIS-0200) (DOE 1997a).

TRU waste would be disposed of at WIPP or DOE would explore other alternatives. TRU waste would arrive on tractor-trailer trucks or railcars. At WIPP, DOE would unload the waste, inspect the waste packages, prepare the packages to be moved underground, and then move them underground for disposal. Environmental and health impacts of TRU waste handling and disposal activities at WIPP are described in the WIPP Supplemental EIS II (DOE 1997b).

HLW would be disposed of at a geologic repository (assumed to be the Yucca Mountain Repository). Waste handling and disposal activities for HLW are described in the *Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada* (DOE 2002a).

2.5 ALTERNATIVE B – OFFSITE SHIPMENT OF LLW AND MIXED LLW TO DISPOSAL, SHIPMENT OF HLW AND TRU WASTE TO INTERIM DISPOSAL, AND ONGOING INTERIM STABILIZATION OF WASTE STORAGE TANKS

Under Alternative B, LLW and mixed LLW shipping would occur as characterized under Alternative A; however, TRU and HLW would be shipped to interim offsite storage. As would be the action under Alternative A, LLW and mixed LLW currently in storage would be prepared for disposal and shipped off the site to Hanford, NTS, or a commercial disposal site such as Envirocare. TRU waste would be shipped to Hanford, INEEL, ORNL, or SRS for interim storage, then to WIPP for disposal. TRU waste could also

Table 2-3. Waste Volumes, Containers, and Shipments Under Alternatives A and B

Waste Type	Totals			
	Volume (cubic feet)[a]	Containers	Alternative A Shipments	Alternative B Shipments
LLW				
Class A, boxes	351,586	4,341	311 (truck) 156 (rail)	311 (truck) 156 (rail)
Class A, drums	83,014	12,058	144 (truck) 72 (rail)	144 (truck) 72 (rail)
Class B, high-integrity containers	38,500	428	428 (truck) 107 (rail)	428 (truck) 107 (rail)
Class B, drums	194	29	1 (truck) 1 (rail)	1 (truck) 1 (rail)
Class C, high-integrity containers	12,618	141	141 (truck) 36 (rail)	141 (truck) 36 (rail)
Class C, 55-gallon drums	6,198	901	91 (truck) 23 (rail)	91 (truck) 23 (rail)
Class C, 71-gallon drums	193,405	20,377	850 (truck) 213 (rail)	850 (truck) 213 (rail)
Total LLW	685,515	38,275	1,966 (truck) 608 (rail)	1,966 (truck) 608 (rail)
TRU[b]				
Contact-handled	40,000	5,810	139 (truck) 139 (rail)	278 (truck)[d] 278 (rail)[d]
Remote-handled	9,000	1,308	131 (truck) 33 (rail)	262 (truck)[e] 66 (rail)[f]
Total TRU	49,000	7,118	270 (truck) 172 (rail)	540 (truck)[g] 344 (rail)[h]
HLW				
HLW canisters		300[i]	300 (truck) 60 (rail)	600 (truck)[j] 120 (rail)[k]
Mixed LLW[c]				
Mixed A, drums	7,889	1,146	14 truck) 7 (rail)	14 truck) 7 (rail)
Total Volume	742,404			
Total Containers		46,839		
Total Shipments			2,550 (truck) 847 (rail)	3,120 (truck)[l] 1,079 (rail)[m]

Source: Marschke 2001

a. To convert cubic feet to cubic meters, multiply by 0.028.
b. Defined by NRC and DOE as waste containing more than 100 nanocuries of alpha-emitting isotopes, with half-lives greater than 20 years, per gram of waste.
c. Generally at WVDP, mixed LLW is shipped off the site for treatment at a commercial facility and from there to a disposal site. Any mixed LLW shipped off the site for disposal must meet the disposal facilities' waste acceptance criteria.
d. 139 CH-TRU shipments from WVDP to interim storage, 139 CH-TRU shipments from interim storage to disposal.
e. 131 RH-TRU shipments from WVDP to interim storage, 131 RH-TRU shipments from interim storage to disposal.
f. 33 RH-TRU shipments from WVDP to interim storage, 33 RH-TRU shipments from interim storage to disposal.
g. 270 TRU shipments from WVDP to interim storage, 270 TRU shipments from interim storage to disposal.
h. 172 TRU shipments from WVDP to interim storage, 172 TRU shipments from interim storage to disposal.
i. Assumed to be 300 for purposes of analysis; actual number of canisters is 275.
j. 300 HLW shipments from WVDP to interim storage, 300 HLW shipments from interim storage to disposal.
k. 60 HLW shipments from WVDP to interim storage, 60 HLW shipments from interim storage to disposal.
l. Includes 270 TRU waste, and 300 HLW, truck shipments from interim storage to disposal. Alternative B would load the same number of truck shipments (2,550) at WVDP for shipment offsite as Alternative A.
m. Includes 172 TRU waste, and 60 HLW, rail shipments from interim storage to disposal. Alternative B would load the same number of rail shipments (847) at WVDP for shipment offsite as Alternative A.

be shipped to WIPP for interim storage prior to disposal there. TRU waste disposal at WIPP would be subject to the same regulatory requirements described under Alternative A. HLW would be shipped to SRS or the Hanford Site for interim storage, with subsequent shipment to a HLW repository (assumed to be the proposed Yucca Mountain Repository for the purposes of analysis in this EIS). The waste volumes, containers, and shipments, from WVDP, would not change under Alternative B from those proposed under Alternative A. However, the additional shipments of TRU wastes and HLW from interim storage locations result in a higher total number of shipments for Alternative B.

As an alternative to the ongoing ventilation of the waste storage tanks under the No Action Alternative and Alternative A, under Alternative B the waste storage tanks and their surrounding vaults would be partially filled with a retrievable, controlled low-strength material (grout) to provide for interim stabilization of the tanks.

For the purposes of analysis in this EIS, DOE assumed that Tanks 8D-1 and 8D-2 and the annulus surrounding each tank would be filled to a depth of approximately 1 meter (40 inches) with grout. Using a conservative pumping rate of 8 cubic meters (10 cubic yards) per hour, it would take approximately 60 hours to fill each tank/vault. The addition of grout to the tanks would not constitute an irreversible action. The grout material would be formulated to be sufficiently flexible to provide shielding and would be retrievable should DOE decide to remove the tanks in the future. The formulation of this low-strength grout material would need to be developed and would be the subject of additional regulatory reviews (such as RCRA) before the interim stabilization action could be implemented. The grout material would also be developed to provide sufficient structural stability and radionuclide retention should DOE decide to close the tanks in place.

LLW and mixed LLW would be disposed of at Hanford, NTS, or a commercial disposal site such as Envirocare. Activities at those sites would include unloading trucks or railcars, inspecting the waste containers, and moving the waste to the disposal areas for shallow land burial. Waste handling and disposal activities at Envirocare are regulated by the NRC and the State of Utah under a Radioactive Material License (UT2300249). LLW and mixed LLW handling and disposal activities at Hanford and NTS are described in the *Draft Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement* (DOE 2002b) and the *Final Environmental Impact Statement for the Nevada Test Site and Off-site Locations* (DOE 1996b), respectively.

TRU waste would be shipped to Hanford, INEEL, ORNL, or SRS for interim storage, and then to WIPP for disposal. TRU waste could also be shipped to WIPP for interim storage prior to disposal there.

At the interim storage sites, the TRU waste would be unloaded, inspected, and moved to storage areas. Additional storage facilities may be needed at these sites, depending on the available waste storage capacity at the time. Up to 0.2 hectare (0.5 acre) of land might be required for facilities sufficient to safely store the 49,000 cubic feet (1,372 cubic meters) of TRU waste currently stored at WVDP. Siting, constructing, and operating TRU waste storage facilities at INEEL, ORNL, and SRS were addressed in the *Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement* (DOE 1995a), the *Final Environmental Impact Statement for Treating Transuranic (TRU)/Alpha Low Level Waste at the Oak Ridge National Laboratory, Oak Ridge, Tennessee* (DOE 2000), and the *Savannah River Site Waste Management Final Environmental Impact Statement* (DOE 1995b), respectively.

Further, the WM PEIS (DOE 1997a) analyzed the potential environmental impacts associated with the possible treatment of TRU waste from offsite generators at WIPP prior to disposal. For that reason, DOE included WIPP as a potential location for interim storage of TRU waste generated at WVDP. A decision

to ship TRU waste to WIPP for interim storage prior to disposal at WIPP would require siting, construction, and operation of TRU waste storage capacity at WIPP and additional NEPA review. Shipment of TRU waste from the interim storage facilities to WIPP and activities at that site are described in the WIPP Supplemental EIS II (DOE 1997b).

Interim storage of WVDP HLW at Hanford or SRS for interim storage prior to disposal at a geologic repository was analyzed as part of the Regionalized Alternatives in the WM PEIS (DOE 1997a).

2.6 ALTERNATIVES CONSIDERED BUT NOT ANALYZED

In contrast with alternatives assessed in the *Draft Environmental Impact Statement for Completion of the West Valley Demonstration Project and Closure or Long-Term Management of Facilities at the Western New York Nuclear Service Center* (DOE 1996a), this EIS does not consider any new onsite disposal of wastes or indefinite storage of currently stored wastes or wastes to be generated as a result of ongoing operations over the next 10 years. DOE has issued EISs and decisions that identify disposal sites other than the WVDP for each waste type considered in this EIS (see Section 1.7). These sites, identified in Alternatives A and B, already have existing or planned disposal capacity; they are safe, secure, and suitable from an environmental standpoint. In light of the current and anticipated availability of disposal facilities at these other sites, DOE presently does not consider an alternative to construct and maintain waste storage facilities at the WVDP to be practical or reasonable over time, because of continuing costs of construction of new facilities and maintenance of existing facilities.

For purposes of analysis in this EIS, DOE selected potential sites for interim storage and disposal of TRU waste and HLW based on the WM PEIS (DOE 1997a), the WIPP Supplemental EIS II (DOE 1997b), and the associated RODs for these documents. For TRU waste, DOE analyzed Hanford, INEEL, LANL, ORR, Mound, NTS, SRS, and WIPP as potential storage sites for TRU waste. The TRU waste ROD stated that:

> "In the future, the Department may decide to ship TRU wastes from sites where it may be impractical to prepare them for disposal to sites where DOE has or will have the necessary capability. The sites that could receive such shipments of TRU waste are [INEEL, ORR, SRS, and Hanford]. However, any future decisions regarding transfer of TRU wastes would be subject to appropriate review under [NEPA] and to agreements DOE has entered into." 63 Fed. Reg. 3629 (1998).

Based on this analysis and documentation, DOE considered Hanford, INEEL, ORNL, and SRS as the potential interim storage locations under Alternative B for TRU waste generated at WVDP. Further, the WM PEIS (DOE 1997a) analyzed the potential environmental impacts associated with the possible treatment of TRU waste from offsite generators at WIPP prior to disposal. For that reason, DOE included WIPP as a potential location for interim storage of TRU waste generated at WVDP. A decision to ship TRU waste to WIPP for interim storage prior to disposal at WIPP would require additional NEPA review.

With respect to HLW, the HLW ROD stated that DOE had decided to store immobilized HLW at Hanford, INEEL, SRS, and WVDP (64 Fed. Reg. 46661 (1999)). In this WVDP Waste Management EIS, DOE examined the environmental impacts associated with shipping HLW generated at WVDP to Hanford or SRS for interim storage prior to disposal at a geologic repository. Although the impacts of shipping HLW to INEEL are not specifically analyzed in this EIS, DOE expects those impacts would be less than shipping to Hanford because the distance to INEEL is shorter and impacts are directly related to the miles traveled.